White House takes initial steps to reduce methane emissions from oil and gas production

Romany Webb January 28, 2015

As in previous years, domestic energy production was again highlighted in President Obama's sixth State of the Union Address. Speaking before a joint session of Congress last Tuesday, the President declared that "America is number one in oil and gas. America is number one in wind power. Every three weeks, we bring online as much solar power as we did in all of 2008." This so-called "domestic energy renaissance" has had many benefits, supporting job growth, promoting industrial development, reducing the trade deficit, and enhancing national security. However, it has also presented new challenges.

I have previously written about the environmental risks posed by increasing oil and gas production, including the emission of methane and other greenhouse gases that accelerate climate change. Since production began to rise in 2008, oil producers' methane emissions have increased by ten percent. According to the Environmental Protection Agency (EPA), those producers now account for over 5 percent of all methane emitted in the U.S. A further 22 percent of methane emissions result from natural gas production. Without action, emissions from the oil and gas industry are expected to rise more than 25 percent by 2025.

These emissions are primarily due to the leakage and venting of natural gas – which is comprised largely of methane – during the production process. Opinions vary as to the extent of this phenomenon, with a recent NRDC study estimating that approximately 2 percent of domestically produced natural gas is leaked or vented, while other researchers put the figure closer to 5 percent.

Various technologies can be used to recover gas that would otherwise be leaked or vented during oil and gas production. The gas recovered can be sold, offsetting the cost of emissions control technologies. A 2014 study by ICF International found that, using currently available technologies, methane emissions can be reduced by 40 percent at a cost of less than 1 cent per thousand cubic feet (Mcf) of gas. That finding was based on an assumption that all recovered gas could be sold for $4 per Mcf. However, even with current gas prices around $3 per Mcf, the cost of reducing emissions remains below $0.01 per Mcf.

Despite this, use of emissions control technologies remains limited. The high initial cost of such technologies, combined with uncertainty regarding the payback period, may deter producers from investing in gas capture. This is particularly likely in areas with limited access to markets for captured gas. In North Dakota for example, significant oil production currently occurs in areas with little gas gathering infrastructure, making it difficult for producers to transport gas to market.

Seeking to address these problems, on January 14, the Obama Administration announced a new plan to reduce methane emissions from the oil and gas industry by 40 to 45 percent below 2012 levels by 2025. Under the plan, the EPA will for the first time directly regulate industry emissions of methane under the Clean Air Act (45 U.S.C. Ch. 85). Until now, such emissions have been only indirectly regulated under standards applying to volatile organic compounds (VOCs) and hazardous air pollutants (HAPs).

As previously reported, in 2012, the EPA adopted regulations designed to cut emissions of VOCs by mandating the use of green completions that capture flowback gas released during well drilling and stimulation. This has also led to a decline in methane emissions from well sites as gas that would otherwise be vented to the atmosphere is used or flared. Building on this progress, the EPA will develop new rules to further limit methane emissions from oil and gas production sites and certain processing and transportation facilities.

The EPA will focus, at least initially, on reducing emissions from new and modified facilities. The Clean Air Act empowers the EPA to develop New Source Performance Standards (NSPS) for new and modified stationary sources of air pollution that may reasonably be anticipated to endanger public health or welfare. NSPS are technology-based emissions standards intended to promote use of the best available system of emission reduction, taking into account the cost of such system and any other health and environmental impact and energy requirements.

Under the Clean Air Act, when the EPA promulgates NSPS, it must establish a procedure for the development of state-based plans to regulate existing sources of noncriteria pollutants (i.e., those for which there is no national ambient air quality standards) that would be subject to the NSPS if they were new sources. To that end, the EPA issues emissions guidelines reflecting application of the best system of emission reduction. The states must develop implementation plans consistent with the guidelines and have those plans approved by the EPA.

Currently, only Colorado directly regulates methane emissions from oil and gas production. In February 2014, the Colorado Air Quality Control Commission issued regulations designed to reduce gas leakage and venting, including by requiring the use of green completions and other emission reduction technologies. Similar regulations will likely also be adopted by other states in the future. Regulation of existing facilities may not, however, occur for many years as the Clean Air Act does specify a timeframe for the EPA to develop emissions guidelines for existing sources. In the interim, oil and gas facilities will likely continue to release significant methane, worsening climate change.

Clean Air Act | climate change | Colorado | epa | greenhouse gas emissions | methane | New Source Performance Standards | oil and gas | State of the Union

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